

FILE NAME: Sprayed Asbestos (SPRA)

DATE: 1964

DOC#: SPRA020

DOCUMENT DESCRIPTION: Medical Journal Abstract

London off
Spraying

gen wind velocity and direction were also recorded.

The dust fall varied between 29 gm/m² in 30 days, i.e. distance of 250 m. to 16 at 460 m. At least all the total emission of pollution travelled 500 m. from the sources. No dwelling houses should be built within 500 m. of installations of similar capacity (cottons a day) to leeward of the prevailing wind directions.

C. A. Davis.

CHENET, C. C. H. A propos des concentrations maximales pour les poussières textiles végétales. [The Maximum Allowable Concentration for Vegetable Textile Dust] *Arch. Méd. Professionnelles*, Paris, 1963, July-Aug., v. 24, Nos. 7-8, 644-51.

This investigation was made to determine the maximum allowable concentration of dust in textile factories and to study the role of dusts. Among 645 workers in such factories, 209 patients who were sensitized to the dust showed Monday dyspnoea. Of these, 26 were seriously affected, their disease reaching Schilling's 3c H. They suffered from asthma, chronic bronchitis, emphysema or cardiac insufficiency and were aged at the age of 30 to 55 years.

The data concerning the 645 workers are tabulated according to their workshops or machines. The dust which they were exposed is expressed as a mean mgm/m³ and the number of the particles per litre less than 5 µ. The size of the particles was estimated in accordance with the method adopted in pneumoconiosis, and the smallest size measured was from that recorded by McKERROW, *et al.* [this *Journal*, 1962, v. 37, 332] which was up to 7 µ. What the limit admitted, the distinction between the small and larger particles is of importance. In cotton factories there was no Monday dyspnoea in workers aged in spinning and roving. In linen factories, it was recorded at all stages up to and including weaving (see also FAYE *et al.* *ibid.*, 1961, v. 36, 530). In all tables the workers are divided according to their service with, for each period, the stages of sensitization according to a modification of Schilling's 3c progression.

Sensitization produced is irreversible and is not cured when the workers are moved to work where the concentration of dust would not sensitize a subject. Suggestions for modernizing plants, i.e. the quantity of fine dust include the application of exhausts to individual machines along with exhaust in the general atmosphere.

There is a note on the role played by histamine.

As regards the maximum allowable concentration in cotton factories the limit of 1 mgm/m³ required by Schilling can be attained except during the short period of cleaning when masks should be worn. In linen factories the maximum concentration should be the same but the reduction in concentration is here more difficult.

Charles T. Sutherland.

FAYE, G. Der Unfall- und Gesundheitsschutz der Beschäftigten bei der Gewinn- und Verarbeitung von Asbest. [Accident and Health Protection of Workers in the Manipulation and Manufacture of Asbestos] *Zeits. f. Arbeitsmed. u. Arbeitsschut.*, 1963, April & Aug., v. 13, Nos. 4 & 8, 77-81, 156 refs.; 181-6. [10 refs.]

In the first part an account is given of the varieties of fibrous minerals included under the general name of asbestos and of their properties. The industries in which a danger of asbestosis occurs are mentioned, such as the asbestos textile industry, asbestos cement production and the manufacture of brake lining. The use of asbestos in the manufacture of insulating materials is declining in favour of the cheaper glass and glass wool.

Theories as to the effect of asbestos fibres in the development of asbestosis are discussed and it is mentioned that in the new version of the regulation in which asbestosis and asbestosis in combination with cancer are specified, there is the addition "disease caused by mixed (chemical/physical) action".

The differences in the symptoms and course of silicosis and asbestosis are compared. In asbestosis the diagnosis by X-ray film is difficult, especially in early cases. The prevention of this disease by medical examination plays only a secondary part to the technical measures and the two should be a social duty. The value of Maximum Allowable Concentration is still in dispute. Accidents in this industry are usually caused by unfenced machinery, especially in respect of carding machines.

The second part is concerned mainly with the technical prophylactic measures adopted in the Hamburg asbestos firms. A table shows the various occupations in which workers suffering from asbestosis were found: not only carding but other occupations produced cases. Tables also showed that from the dust concentrations present, spinning, weaving and braiding were dangerous processes. Dust suppression measures were applied to the extent that in the factory they required one third of the total electricity.

used by the factory. In the preparation of raw asbestos for manufacture, spacing of the machines, fitting them with exhausts and part enclosure are the dust suppression measures used. Cleaning the dust chambers is done on Saturdays by workers provided with masks and special clothing to protect the skin from the fibrous dust.

One or two special branches of the industry are discussed. Mat making is safe compared with asbestos spraying. The workers using sprays may have to spray overhead and they often smoke cigarettes while doing so. This has been corrected. The spraying should be done when other workers are absent. Sawing of asbestos cement boards should be done under exhaust and the workers should have masks. A warning is given that masks should keep out the fine dust. The old rubber sponge masks and fresh air masks are not recommended.

Accident prevention is mainly a matter of fencing machinery. Some of the special machinery used in asbestos factories, for example carding, is difficult to fit with side protection. As most of the workers employed in such machines are women there is the danger of clothing, dresses and aprons becoming entangled in moving machinery. It appears, however, that, in general, accident prevention in the Hamburg asbestos factories is carried out in a satisfactory manner.

Charles I. Stachland

VISWAKSHAN, R., DE MONTE, A. J. H., SHIVPURI, D. N., VENKATESHBRAMAN, I. A., JANDON, H. D., CHANDRASEKHAR, S., TAIN, S. K., GUPTA, I. M., PRIYAPAL SINGH, GUMBER, K. K., RANDEWA, H. S. & SINGH, V. N. Bagassosis. *Indian J. Med. Res.* 1963, May, v, 51, No. 3, 563-633 (1 text fig. & 19 figs on plates. [Numerous refs.])

Bagasse is being increasingly used in India for the manufacture of paper and insulation boards. The appearance of several cases of bagassosis in the paper industry led to this comprehensive enquiry which was carried out at a factory employing some 160 workers, 60 of these were engaged by contractors so that there was a considerable turnover of workers, new recruits being taken on.

Bagasse dust consists of pith particles mixed with some bundle and rind fibres. Particle counts made in different sections of the factory showed that the largest numbers of particles found in the air were in (1) the place for the breaking up of the bales of bagasse, (2) the bagging pit where unusable portions of bagasse were collected in bags, and (3) the dust chamber which had to be cleaned out 3 times a day.

The particle size varied from below 2.5 μ to 45 μ being from 2.5 μ to 10 μ in 90% of the particles as a guide for dust concentrations in different departments. Examinations were made at intervals of 6 months of new recruits who were employed at the most dusty places so as to shed light on the development of the disease.

The first examinations were carried out in the factory in 1957 and were repeated each year until 1960. These examinations were very extensive. The results showed that over 95% of workers exposed to bagasse dust developed respiratory symptoms compared with 6% in a control group. The symptoms as shown by the new recruits were not too cough, then dusty sputum and breathlessness. Most new recruits developed these in 1 to 6 months, but often there were remissions in the symptoms during periods of leave. The radiological findings were characteristic, although prominent bronchovascular markings were seen to increase during a 3-year period of 3 years. The skin tests yielded a positive result to the whole bagasse antigen in 100% of the workers, but in very few to the carbohydrate component fractions. Only 10 new recruits were given pulmonary function studies showed that the vital capacity was decreased in most of the workers, but no significant change was observed in the maximum breathing capacity or the mid-expiratory rate. The dyspnoea which seemed to be due to an increasing exposure cannot be accounted for by an obstructive type of pulmonary involvement. There is probably some diffusion defect caused by the thickening of the alveolar walls as seen in experimental animals exposed to bagasse. Only one case was an acute disease, the rest corresponded to the type reported by previous investigators such as CASTLEDS and PRYOR and PATTERSON [*Brit. J. Ind. Med.*, 1943, v, 18, 134] and HILL and PERRY [*ibid.*, 1946, v, 21, 747]. What is new found in the present study is a chronic, relatively mild form of gradually progressive disease in the workers exposed to heavy concentrations of bagasse dust. This has not previously been reported in medical literature.

A series of laboratory studies including animal experiments and biochemical investigations were carried out at the Patel Chest Institute, Delhi. The methods used are fully described. Various types of dusting experiments on animals, in which both dry and sterilized bagasse dust was used produced interstitial pneumonitis with alveolar exudates, sometimes with foreign body giant cells. With prolonged